

Transformations in Lighting

2012 DOE SOLID-STATE LIGHTING R&D WORKSHOP

January 31–February 2, 2012
Hyatt Regency Atlanta • Atlanta, GA

Workshop Agenda

DAY 1 — Tuesday, January 31

11:00 a.m.	<i>Registration Opens</i>
1:00 p.m.	Welcome & Introduction It's a pivotal time for solid-state lighting. As early products gain traction, a deeper understanding of the science drives impressive improvements and innovative new directions. Most agree that we have barely skimmed the surface of what is possible with LED and OLED technology. So what will it take to unlock the full potential—and energy-saving impact—of SSL? <i>James Brodrick, U.S. Department of Energy</i>
1:30 p.m.	A Lighting Transformation We are in the midst of a lighting revolution comparable to the days of Edison—but where exactly are we in that process? This presentation will explore the rapid growth of SSL, where it's headed, and how this technology will transform the lighting industry. What are the prospects for SSL, and what is needed to drive SSL into the mainstream? <i>Josh Baribeau, Canaccord Genuity</i>
2:15 p.m.	Fueling Technology Advancements and Innovations The current pace of innovation in the SSL industry is staggering, and shows no sign of slowing. This presentation will look at SSL technology progress, where we are headed, and what is needed to continue to stoke the fires. What are the key science challenges and technology hurdles that must be addressed for SSL to succeed? <i>Fred Maxik, Lighting Science Group</i>
3:00 p.m.	<i>Refreshment Break</i>
3:30 p.m.	Panel 1—Insights from Installations SSL installations highlight what we know—and don't know—about how today's products perform in real-world applications. Often, these experiences provide insights that can inform product design improvements or future areas of R&D focus. This panel will discuss system compatibility and performance challenges encountered in GATEWAY demonstrations, share insights from electrical analysis of failed luminaires, and present real-world reliability and payback results achieved in the Seattle LED street lighting program. <i>Moderator: Bruce Kinzey, Pacific Northwest National Laboratory</i> <i>Michael Poplawski, Pacific Northwest National Laboratory</i> <i>Philip Keebler, Electric Power Research Institute</i> <i>Edward Smalley, Seattle City Light</i>
5:00 p.m.	<i>Adjourn</i>

DAY 2 — Wednesday, February 1

7:30 a.m.	<i>Continental Breakfast</i>
8:00 a.m.	<p>Learning from Displays: Light Management for General Lighting Insights on the migration of light management technology from the laboratory toward commercial applications. How best can we leverage display and related technologies to create innovative luminaires? <i>Tom Simpson, 3M</i></p>
8:45 a.m.	<p>DOE SSL Research & Development Program Update An overview of the DOE SSL R&D portfolio, budget, and areas of focus, with recognition of six project teams making significant contributions in 2011. <i>James Brodrick, U.S. Department of Energy</i></p>
9:15 a.m.	<p>2012 Invited Presentations on R&D Projects Invited talks highlight a sampling of DOE-funded R&D projects tackling particularly tough challenges with the potential for game-changing results.</p> <p><i>Energy Saving Phosphorescent Luminaires</i> <i>Mike Weaver, Universal Display Corporation</i></p> <p><i>Solution-Processed Small-Molecule OLED Luminaire for Interior Illumination</i> <i>Ian Parker, DuPont Displays</i></p> <p><i>High-Flux Commercial Illumination Solution with Intelligent Controls</i> <i>Camil-Daniel Ghiu, OSRAM Sylvania</i></p> <p><i>High Efficiency Driving Electronics for General Illumination LED Luminaires</i> <i>Anand Upadhyay, Philips Lighting</i></p> <p><i>High Efficiency m-Plane LEDs on Low Defect Density Bulk GaN Substrates</i> <i>Aurelien David, Soraa, Inc.</i></p>
10:15 a.m.	<i>Refreshment Break</i>
10:45 a.m.	2012 Invited Presentations on R&D Projects (continued)
11:30 a.m.	<p>Preparing a Comprehensive Proposal: DOE SSL Solicitations A look at the DOE selection process for SSL R&D projects, along with straightforward guidance on how to assemble a comprehensive proposal for DOE funding. <i>Joel Chaddock, National Energy Technology Laboratory</i></p>
Noon	<i>Lunch</i>
1:00 p.m.	<p>Panel 2—Fundamental Science Questions Despite the rapid pace of SSL developments, there are still fundamental science challenges to be addressed before SSL can achieve its full potential. This panel will explore questions about light extraction, innovative structures, novel materials, and more. Moderator: <i>Morgan Pattison, SSLS, Inc.</i> <i>Sebastian Reineke, Massachusetts Institute of Technology</i> <i>Dan Dapkus, University of Southern California</i> <i>Robert Biefeld, Sandia National Laboratories</i></p>

2:30 p.m. **Choosing What We Need to Do: DOE's Multi-Year Plan**
 A look at the DOE SSL R&D planning process, which guides DOE research priorities and funding opportunities. This presentation will share feedback from a series of roundtables held in Fall 2011, and will set the stage for further discussion of basic science challenges and priority needs in the breakout sessions to come.
Fred Welsh, Radcliffe Advisors

3:00 p.m. **Refreshment Break**

3:30 p.m. **LED/OLED Track Sessions: Hot Topics**
 Track presentations will explore topics of interest that emerged in the Roundtable discussions, and lay the groundwork for more in-depth discussions tomorrow.

<p>LED track sessions will explore issues associated with substrates, down converters, alternative device architectures, and luminaires. Moderator: <i>Steve Bland, SB Consulting</i> <i>Mike Krames, Sora, Inc.</i> <i>Seth Coe-Sullivan, QD Vision</i> <i>Decai Sun, Philips Lumileds</i> <i>Eric Haugaard, BetaLED Cree Inc.</i></p>	<p>OLED track sessions will explore the status and critical issues of light extraction, materials, and luminaire integration. Moderator: <i>Lisa Pattison, SSLS, Inc.</i> <i>Mike Lu, Acuity Brands Lighting</i> <i>Florian Pschenitzka, Cambrios</i> <i>Asanga Padmaperuma, Pacific Northwest National Laboratory</i> <i>Ching Tang, University of Rochester</i></p>
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5:00–7:00 p.m. **Poster Session/Reception for All DOE-Funded Research & Development Projects**
Sponsored by the Next Generation Lighting Industry Alliance
 More than 40 project posters will be presented by research team representatives, providing an opportunity to browse and ask questions of America's leading scientists.

DAY 3 — Thursday, February 2

7:30 a.m. **Continental Breakfast**

8:00 a.m. **A Lighting Designer's Wish List**
 When approaching new projects, lighting designers see LED products as one of many options in the tool box. This presentation will explore what's *not* in the tool box (yet!), with an eye toward specific lighting needs that cannot be met adequately by any product today, but *might* be doable with LED technology.
Barbara Cianci Horton, HLB Lighting Design

8:30 a.m. **LED/OLED Topic Table Discussions**
 Attendees will have an opportunity to talk in small groups about a variety of topics considered key to furthering SSL technology advances. Each table will focus on a specific priority topic, allowing for more detailed exploration of the topic and related issues.

10:30 a.m. **Refreshment Break**

11:00 a.m. **LED/OLED Topic Table Reports** (continuation of previous session)
 Each group will share a brief report of key points related to their topic, with an opportunity for further discussion with the full LED or OLED group.

Noon **Lunch**

1:00 p.m.	LED/OLED Breakout Sessions on MYPP Priorities Inputs from the morning sessions will guide a discussion of priority issues and how they relate to the proposed updates for the DOE multi-year R&D plan.
2:30 p.m.	<i>Refreshment Break</i>
3:00 p.m.	Panel 3—Where Is the SSL Revolution Headed? Looking ahead, what are the SSL solutions of tomorrow? What applications best support the value proposition? This panel will explore the difference between technology push and application pull, with a long-term view of where the revolution is headed. Moderator: <i>James Brodrick, U.S. Department of Energy</i> <i>Kevin Leadford, Acuity Brands Lighting</i> <i>Brian Chemel, Digital Lumens</i> <i>Steve Paolini, Lunera Lighting</i>
4:30 p.m.	<i>Wrap-Up and Adjourn</i>